

lines 12-13 and support for the latter amendments may be found, among other places, at page 8, lines 3-6 of the subject specification. Entry of these amendments is respectfully requested.

In the subject Action, claims 1, 3 and 5-13 were rejected under the second paragraph of 35 USC § 112 as being indefinite. In particular, it was alleged that it was improper to claim the "uncut" molded block as an artificial joint since, in the opinion of the examiner, the block was unsuitable for such use until cut. Reconsideration of this rejection in view of the following comments is requested.

As can be noted from the claim amendments above, the claims directed to an artificial joint have been amended to reduce the supposed ambiguity identified by the examiner. In particular, the introductory portion of these claims has been amended to recite "An artificial joint for implantation in a joint of an animal, the joint comprising a joint component formed from an ultra high molecular weight polyethylene molded block..." Accordingly, withdrawal of the rejection under the second paragraph of 35 U.S.C. § 112 is respectfully requested.

In addition, claims 1, 3 and 5-13 were rejected under 35 USC § 103 as being unpatentable over the newly cited patent Murray et al in view of the previously applied patent to Kitamaru et al. In making this rejection, it was asserted with respect to claims 1, 3, 5 and 9-13 that the Murray et al patent teaches an artificial joint from UHMWPE type material. In so doing, it was acknowledged that this material is not the same as the material as claimed in terms of cross-linking and compression deformation. As before, the Kitamaru et al patent was then relied upon in teaching an oriented crystallized UHMWPE molded article which has the

characteristics as claimed. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Initially, it is noted that the Murray et al patent was only applied relative to claims 10-13 which are directed to artificial joints. With respect to the other claims, these claims are not limited to artificial joints and thus only the Kitamaru et al patent was applied, it being asserted by the examiner on lines 5-6 of page five of the Action that the claims to block are not distinguished over the Kitamaru et al patent alone.

As to the rejection of the claims directed to an ultra high molecular weight polyethylene molded block, it is submitted that these blocks are distinguished from the material as taught by the Kitamaru et al patent in at least three important respects. First, the molecular weight of the subject blocks is now recited to be not less than 5 million, in distinct contrast to the materials of the cited patent. In addition, two further distinguishing characteristics of the blocks of the present invention relative to the articles according to the Kitamaru et al patent are the form or shape of the article (block vs. sheet) and the crystal structure thereof.

As to the first, it is submitted that the subject claims distinguish over the Kitamaru et al patent by reciting a molecular weight range of at least 5 million. The recited molecular weight of the preferred range is above the range disclosed for the articles according to the cited Kitamaru et al patent.

Furthermore, as explained in detail in the following, it is submitted that, in accordance with the teachings of the Kitamaru et al patent, the specific crystalline structure

according to the presently claimed invention cannot be produced, and thus the ultra high molecular weight molded block as defined by independent claims 1, 5 and 9 and the artificial joint as defined by independent claims 10 and 11 patentably distinguishes over the teachings of this patent.

More particularly, the Kitamaru et al patent only discloses the preparation process of a film or sheet having a thickness of up to 1 mm. A thicker block having a thickness of 5 to 10 mm according to the presently claimed invention cannot be prepared by the disclosed process such as by a stretching or rolling method. Further, the Kitamaru et al patent does not teach the "wear resistance" which is the essential property required by an artificial joint. The high wear resistance can be obtained only by the compression molding process stated in the pending claims.

It was asserted in the Action that, during the rolling described in the Kitamaru et al patent, a compression step is inherently performed. However, according to the compression molding process in accordance with the present invention, the compression-deformed block must be cooled and solidified under pressure to keep the deformed state. According to the rolling method as disclosed by the Kitamaru et al patent, the rolled sheet from the rolls is free of pressure and is then solidified without application of pressure. If the deformed state is set free before solidification as in the rolling according to the Kitamaru et al patent, the stretched molecular chains are relaxed in stress and return to the original state because the compression-deformation is conducted in the molten state as is described on page 7, lines 21-31 of the subject specification.

From a technical point of view, a compression-deformation method and a rolling- (or stretching-) deformation method are completely different. In particular, according to the rolling- (stretching) deformation, the resultant rolled article (that is, a sheet or film) is uniformly flat and has a uniform thickness. In distinct contrast, an artificial joint which may have an irregular profile to comply with a patient is impossible to prepare in such a fashion. However, such an artificial joint can be prepared by the compression-deformation method according to the subject process.

With respect to the rejection of claims 10-13 directed to an artificial joint, it is submitted that one of ordinary skill in the art would not be led to utilize the material according to the Kitamaru et al patent in an artificial joint according to the Murray et al patent. Among other things, the Kitamaru et al patent teaches that the materials disclosed therein are used for films and have improved properties such a raised melting point, dimension stability at high temperatures and excellent transparency. Thus, it is submitted that these properties are not important for materials for use in artificial joints. Therefore, it is submitted that one of ordinary skill in the art would not utilize the material of the former patent in the joint according to the latter patent.

In summary, it is submitted that the molded block according to claims 1, 3 or 9 is distinctive from the film or sheet prepared by the rolling method according to the cited Kitamaru et al patent. With respect to the method claims 5-8 according to the present invention, as explained in the above, the compression method is not involved within the rolling method, the method claims also distinguish over the cited patent. With respect to the artificial joint invention according to claims 10-13, there has been no showing as to how an artificial joint can

be manufactured from a film or sheet since an artificial joint is a shaped or designed block, and is not a film or sheet.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103 and allowance of claims 1, 3 and 5-13 as amended over the cited Murray and Kitamaru et al patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

ARMSTRONG, WESTERMAN, HATTORI,  
MCLELAND & NAUGHTON

A handwritten signature in black ink, appearing to read 'Donald W. Hanson', written over a horizontal line.

Donald W. Hanson  
Attorney for Applicants  
Reg. No. 27,133

Atty. Case No. 960381

1725 K Street, N.W., Suite 1000  
Washington, D.C. 20006  
(202) 659-2930  
DWH/nk